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ABSTRACT

Research into the psychology of perception can uncover important discoveries for more efficient learning. There must be increased understanding of the processing of input and the pre-processing of output for improved language instruction. Educators must at the present time be extremely wary of basing what they do in the foreign-language classroom on presumed definitive statements about language learning from either linguistics of psychology. Theories on perceptual processing can help in the analysis and solution of language learning problems. (Author/VM).

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THE FOREIGN-LANGUAGE TEACHER AND COGNITIVE PSYCHOLOGY

OR WHERE DO WE GO FROM HERE?

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Martin Braine, the eminent psycholinguist, tells the story about his two-and-a-half-year-old daughter who had the habit of using "other one" as a noun modifier, as in "other one spoon." On a number of occasions he tried to induce her to utter the correct form "the other spoon." A typical interchange went as follows: "Want other one spoon, Daddy"--"You mean, you want THE OTHER SPOON." "Yes, I want other one spoon, please, Daddy."--"Can you say 'the other spoon'?"--"Other...one... spoon"--"Say...'other'"--"Other"--"Spoon"--"Spoon"--"Other...spoon"--"Other...spoon. Now give me other one spoon?"[1] Braine uses this as an example to show that children have difficulty in using negative information (that is, correction) for the development of their syntax, a feature of child learning that has been observed by many researchers.

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Any foreign-language teacher must nod understandingly on hearing a story such as this and think of similar experiences he has had: when, for instance, after careful and apparently successful practice of the form of a question a student raises his hand and asks, "What means this word, Miss X?"[2] And so our problems continue perennially. It does not surprise us when, in this period of innovations, the student working on his individualized packet on the mysterious workings of the direct object in French looks up as his facilitator of learning[3] comes to his carrel in the learning center and says: "Je comprends le très bien." External arrangements may be different, our attitude to our students' learning may have changed so that the pace of activities, even the type of activity, has been adjusted to individual styles, but the problems of language learning remain: those peculiar problems which make the learning of a foreign language a different proposition from the learning of history or science or home economics.

We certainly do not lack statements on how we should go about our task of helping a student to acquire a second language. In fact we seem at times to be almost deafened by a babble of voices. One rather prevalent (and to my mind over-simplified) view is described by Cooper in the following terms: "There seems to be little evidence that the actual language-learning processes

differ for the child and the adult. Somehow, both have to abstract the linguistic rules underlying the language as well as the sociolinguistic rules underlying its use. Some second-language learners may do this more quickly than others...but they must do it nonetheless if they are to learn the language. The question which confronts us as language teachers is how we can best structure the language-learning situation so as to exploit the language-learning abilities of the student."[4] The type of restatement in the last sentence, if taken at its face value, obviously does not throw a great deal of light on the problem. It does, however, highlight the need for us as teachers to know as much as we possibly can about the way the student learns and learns language. The approach in the passage cited is that of a number of writers in recent journals who are trying to reexamine teaching problems in the light of the latest findings of linguistics and psychology.

When we discuss language-learning processes at the level of generality of Cooper's statement we must not be surprised to read that these "processes" do not differ for the child and the adult. It is almost self-evident that the language learner must "abstract" and internalize as a part of his own

cognitive structure the system of linguistic and sociolinguistic rules if he is to function autonomously in the language, independently of his teacher. We are not surprised, at this undifferentiated level, when the writer tells us that he must do this "somehow."

Basic to Cooper's statement is a theory expounded in several places by Chomsky[5] that the child has innate language-learning abilities in the form of "a linguistic theory that specifies the form of the grammar of a possible[6] human language" and a "strategy for selecting a grammar of the appropriate form that is compatible with the primary linguistic data,"[7] that is, for matching with the language he hears around him (Chomsky calls it "meagre and degenerate data"[8]) the form of a particular grammar from a "fairly restricted set of potential languages".[9] The "strategy" of which Chomsky is speaking is a language acquisition device (LAD)[10] which proceeds by hypothesis-testing. The child makes hypotheses about the form of the grammar of the language to which he is attending. He compares this with his innate knowledge of the grammar of a possible language[11] which is congruent with the abstract principles of universal grammar and which is capable of generating through

ordered sets of transformations the many surface variations of this specific language. (Note that the hypotheses the child is presumed to be making are about deep structure relationships, not the peculiarities of surface structure.)

It is against this theoretical background that we can now consider Cooper's proposals for an actual language teaching situation. Quoting from an article by Vivian Cook,[12] he suggests that the teacher should "permit, and indeed encourage the learner to produce sentences that are ungrammatical from the point of view of the target language. This would be done on the assumption that...the second language learner's deviations are not random but systematic and reflect implicit hypotheses as to the nature of the language being learned...When he produces sentences which deviate from those of the target language, the teacher's reactions can help him change the hypotheses. Note that the teacher would be more concerned with correcting the hypothesis underlying the deviant sentence than with inducing the student to correct the particular sentence."[13] Now I certainly agree that we should give our students abundant opportunity to experiment in spontaneous use of the language, knowing full well that in doing so they will produce some ungrammatical

sentences. In a recent article, "Talking off the Tops of their Heads",[14] I have advocated that such opportunities be provided as early as possible in the student's language-learning experience, in association with the structured teaching sequence. This type of free-wheeling gives the student opportunities to try what he can do with what he knows: making "infinite use of finite means" (to use the oft-quoted phrase of Humboldt). It is during such autonomous interaction that we can see what systematic errors the student is making and correct his erroneous hypotheses about the structure of French, or German, or English.

What I am interested in, then, is not so much what is being proposed here but its theoretical underpinnings. First of all, linguistically speaking, it cannot be considered an application in teaching practice of Chomskyan theory. The child's hypotheses about which Chomsky is speaking are, as we have noted, at the abstract level of deep structure. Since the child's knowledge of the grammars of possible languages is said to be innate, his hypotheses about the nature of the language to which he is attending cannot really be deviant and in need of correction, if our interpretation of the theory is consistent. Chomsky says "various formal and substantive universals are

intrinsic properties of the language-acquisition system, these providing a schema that is applied to data and that determines in a highly restricted way the general form and, in part, even the substantive features of the grammar that may emerge upon presentation of appropriate data".[15] It is in this sense that the utterances of children learning their first language are no longer considered "errors" by developmental psychologists who base their interpretations on the innateness theory, but rather exemplars of basic structural relations.[16] Extrapolating directly from linguistic theory to classroom practice is not as simple as the quotation from Cooper would make it appear.

In a laudable enthusiasm to keep language teaching practice congruent with the latest theories in other disciplines there seems to be a recent tendency to brush aside what the older learner brings to the second-language learning experience.[17] In the classroom situation/that Cooper is describing the deviations which are "ungrammatical from the point of view of the target language" are clearly at the surface structure level and do not reflect "implicit hypotheses as to the nature of the language being learned" in the sense in which Chomsky has used these terms. We are clearly talking about a different type of hypothesis. As

every experienced teacher knows, one of the principal hypotheses underlying the deviant utterances of an older student learning a second language is that the surface structure of the new language will closely duplicate the surface structure of his first language. The first-language learner who hears only surface realizations of the underlying rules of the particular language he is learning (interspersed with some performance errors) and who is surrounded during all his waking hours by the language he is trying to acquire does not have this conflict in his natural language-learning situation. He detects logical relations and begins in a basic fashion to express these relations. It is these relations, as Lakoff has recently observed,[18] which are a part of universal grammar. This explains why young children learning different languages seem to pass through similar developmental phases, producing similar early grammars which represent the same basic relations before they reach the stage of differentiation of the details of the surface structure of the particular language they are acquiring. When, however, even a young child learns a second language, still in a natural, untutored fashion, we have evidence that he too suffers from the interference of the surface features of one

language with the surface features of the other.[19]

When the adult learner discovers that many features of the two surface structures are not comparable in their functioning he frequently over-compensates by over-generalizing divergent features of the new language to instances where the two systems do in fact coincide. (Having learned that a French adjective frequently follows the noun as in une pomme rouge, he will over-generalize to un crayon long where the order paralleling the English order, un long crayon, would have been appropriate.) The recent research in error analysis reported by Jack Richards[20] shows over half the errors he cites to be interference errors while among the remaining over-generalization errors many are overcompensatory. Learning the limits of generalization of specific rules in a new language is a problem which can often be handled better by direct instruction, which highlights differences in the surface structures of the native and target languages, rather than by "encouraging" the student to produce deviant utterances according to his current hypothesis until such time as he has had sufficient experience to correct himself. In free interaction we cannot ensure that sufficient opportunities of miscomprehension will occur at particular points of over-generalization to provide

the student with adequate data for the correction of his hypotheses. Nor can we ignore the factor of attention. The student attending specifically to problems of comprehending and expressing his meaning comprehensibly may well not have sufficient cognitive processing capacity available to note and store at the same time signals of the deviancy of certain surface structure features. Inconvenient facts of this type seem to be easily forgotten as soon as we begin to explore again the attractive hypothesis that processes of learning a second language are identical with those for learning a first language. As Stern has put it

so aptly: "Once language development has taken place, it produces a lasting structural change. If a new language is learned in later years, it is filtered through the language acquisition device of the individual, modified by his first language."[21]

Unfortunately for the "natural" language-learning argument, recent research has left it far from clear how the child does acquire his first language and some assumptions reflected in current writings on foreign-language teaching appear now to have very problematic status. Many foreign-language teachers seem not to be aware of the fact that very reputable linguists[22], philosophers[23], and psychologists have sharply criticized Chomsky's theory of an innate linguistic faculty which enables the child to identify the form of the grammar of the language by which he is surrounded. Schlesinger comments: "There can be no question, of course, that the organism comes to any learning task with some innate equipment; the question is only how much is innate. The soundest approach seems to be to make as few assumptions as possible, and to try to explain with these as much as possible." Bruner says, "I am prepared to believe that in the linguistic domain the capacities for categorization and hierarchical organization are innate, and so, too, are predication,

causation, and modification."[24] Braine would accept as innate the mechanisms which permit us to perceive temporal position and co-occurrence relations.[25] Ervin-Tripp observes that "order relations seem very apparent to children...Order is almost always accurately reproduced in imitations".[26] Bever maintains that "there is not as much innate structure to language as we had thought, if the 'universal grammar' is stripped of those aspects that draw on other psychological systems" (notably mechanisms of perception, learning, and cognition).[27] The present consensus appears to be that it is the logical structures basic to various intellectual processes which are innate, and which distinguish man as a species, not language-specific structures, and that it is these logical structures which make it possible for man to acquire and use language as well as to perform other cognitive operations. In this sense the concepts of "noun phrase", "verb phrase", or "sentence" could not be innate, as McNeill had earlier suggested,[28] but rather the capacity to categorize, to establish hierarchies of categories and relations between categories, the categories themselves being derived from common experiences of man in a human enviroment. In this sense, foreign-language teachers

have always exploited the innate language-related capacities of the students by taking for granted that they can apprehend basic relationships of temporal order, cooccurrence, category, and hierarchy, and such operative relations as agent-action, action-object, causation, and modification.

Even the Chomskyan concept of the child acquiring a language system by hypothesis-testing is by no means uncontested. Braine argues convincingly that the child cannot be proceeding by the testing of hypotheses because real hypothesis-testing is dependent on the reception of both positive information (acceptance) and negative information.[29] Without negative information, that is, correction or rejection of unacceptable sentences, a child cannot test hypotheses about grammaticality. Yet, strong evidence exists that children do learn language from positive information only, even though some of this information is inaccurate (e.g., in cases where the child's deviant utterance is accepted by the adult). Whether children are corrected or not[30] they acquire the language of the community in which they are growing up, and busy parents notoriously miss many opportunities to correct their children's speech, even adopting the children's own forms on occasions, forms which the child is often hearing also from other children of his own age. We also know that children

do not adjust their utterances when negative information is provided (even when this is done in an insistent fashion, as with Braine's child at the beginning of this paper[31]) but they continue to operate within their own structural system until it has evolved to the stage where the particular adjustment indicated by the correction becomes functionally warranted. It is, therefore, far from proven that the child acquires his first language by a process of hypothesis-testing. We may like to use this technique in our classes for motivational reasons or to add variety to our approach but we cannot claim at present that it is more than a heuristic on our part.

We are also told frequently these days that children do not learn language from a limited and structured corpus, that children hear language of all levels of complexity, and that it is because of this constant exposure to a full array of language structure and vocabulary from the beginning that the child is able to discover for himself the complete grammar of the language. Some people have asserted on the basis of this presumably scientific information that second-language students should not be presented in the early stages with a simplified form of the language (that is, with basic patterns and a limited vocabulary[32]) but be exposed from the beginning to the full range of language.[33] More recent child language acquisition

studies have shown, however, that it is not the case that the child learns from a wide variety of complicated structures and vocabulary. Actually, the child tunes out much of what he does not understand in language which is not addressed to him. Attention and memory play essential roles in comprehension. What the child is not attending to is processed minimally, if at all, and the child's memory span initially is very short. The sentences to which he is directly exposed tend to be short, repetitive, and quite limited in range of structures and vocabulary. This we know from recent investigations of Ervin-Tripp and her associates at Berkeley. Ervin-Tripp quotes a sample of adult speech to a two-year-old child which runs as follows: "Come play a game wit' me. Come play a game with me. Wanna play a game with me? You wanna play a game with me...? Come look at Mamma's colorin' book. You wanna see my coloring book? Look at my coloring book. Lookit, that's an Indian, huh? Is that an Indian? Can you say Indian?"[34] (The same mother was using with adult friends sentences like the following: "It gives me a certain amount of consolation which allows me to relax my mind and start thinking intelligently an' putting my efforts all in one y'know force goin' in one direction rather than jus' y'know continually feeling sorry

for yourself.")[35] As for the child himself, Weir has given examples of the speech of her child, David, at three years of age, talking into the microphone with which he had become familiar: "Here's de place. Bad boy bad boy Dave. Bad boy bad boy Dave. Dave is not a bad boy. Mike is a bad boy. Dave is OK but Mike is not."[36] Here we have the child saying over to himself simple noun phrases with modifiers and affirmative and negative declarative sentences with occasional ellipsis.

We must at the present time be extremely wary of basing what we do in the foreign-language classroom on presumed definitive statements about language learning from either linguistics or psychology. As Schlesinger has put it so aptly: "psychological theorizing about language learning is in its infancy, and generative grammar is not yet fast frozen."[37] Generative grammar is in fact in such a state of evolution at the moment[38] that we bystanders would do well to wait till the dust settles before attempting to shape our classroom practice in any radical way according to principles and structures which tomorrow may be passé. Lamendella has concluded that "theories of linguistic description are relevant to language teaching only to the extent that they form part of the data which psycholinguists may use in constructing a cognitive theory

of language. It is this theory which may properly be utilized as the theoretical basis for second-language pedagogy."[39] Such a theory of language stemming from psycholinguistics is not yet in sight. As eminent a cognitive psychologist as Bever observes: "I have said little about the effects of general principles of learning on linguistic structure because I do not know anything about how language (or anything else) is learned, while I do have some initial understanding of the mechanisms of perception."[40] Problems of first-language acquisition aside, there are important discoveries in the area of perception, both auditory and visual, which can help us to help our students learn more efficiently and which can give us firmer bases for the designing of learning materials. A little later we shall see what light they throw on particular learning problems with which we are all familiar.

There are, of course, cognitive psychologists who are interested in both problems of learning in general and in language-learning. Carroll has quite a deal to say about both in "Current Issues in Psycholinguistics and Second Language Teaching",[41] where he deplores the misinterpretation of his 1965 article[42] in which he had discussed audiolingual habit theory and what he called cognitive code-learning theory. In his 1971 article he calls for a "meaningful synthesis", sug-

gesting that "if it does not seem too flip to do so," we should call this approach "cognitive habit-formation theory". This article should be read carefully by all those interested in present controversies. Hebb, Lambert, and Tucker have shown recently how Hebb's cognitive learning theory can be applied to language learning.[43] Piaget has devoted his life's work to the relationship between learning and cognitive growth, and Bruner has made cognitive theory accessible to teachers in Toward a Theory of Instruction.[44]

At this stage, a word of warning. We hear a good deal these days about a "cognitive" approach to foreign-language teaching and its proponents speak as though the techniques they propose in some way exemplify the principles of cognitive psychology. When we examine what they are saying a little more closely we sometimes find that they are merely proposing a return to the deductive presentation of grammar rules before practice to make what is practiced presumably more "meaningful" and that this is considered a more "cognitive" way to proceed. I do not intend to consider here the pros and cons of a deductive versus an inductive approach. Kelly traces this controversy back at least to St. Augustine and quotes Lubinus in 1550 as writing: "Now what and how monstrous an absurdity is it...to bid them give

an account, why they speake Latine right, before they can in any wise speake properly."[45] In a teaching situation both induction and deduction may be very effective depending on the way they are integrated into the total teaching-learning situation. In fact most teachers use one approach or the other at different times, depending on the age and ability of the learners and the nature of the problem under consideration. I am merely concerned here with the very meagre interpretation of cognition which identifies it with a deductive presentation of grammar rules and an emphasis on analysis of structure, useful as these may be at the right place and time. Psychologically speaking, analysis is a cognitive process but so, most definitely, is analogy, requiring as it does the prior recognition of a pattern--the realization that there is something in common between two otherwise different events, which is a process of abstraction. Learning rules is a cognitive process but so is inferencing. We cannot imitate without activating a cognitive process.[46] It is noteworthy that small children find it difficult to imitate an utterance: they either interpret and rephrase it, or they answer a question or perform an action.[47]

A cognitive psychologist would make no attempt to establish a value hierarchy for these processes.

He tries to find out what takes place when we perform any of them. He is interested in different strategies of learning and the stages of maturation at which each becomes dominant, or is, in Piaget's system, at least a possible operation for the child. He is interested in how we recognize phonic or graphic patterns and the interpretations we impose upon them. He is interested in short- and long-term memory. He is interested in what makes any object of learning or any situation meaningful to a particular student. Essentially he is interested in what goes on <u>inside</u> the organism: how we observe, interpret, interrelate and comprehend, reorganize and use <u>any</u> material for learning, because all living is learning. From what he discovers he is able to make suggestions for improving institutionalized learning (that is, in-school tasks), recognizing that no process or procedure is appropriate for all types and conditions of learning.

For the cognitive psychologist, then, cognition "refers to all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used...Given such a sweeping definition, it is apparent that cognition is involved in everything a human being might possibly do; that every psychological phenomenon is a cognitive phenomenon."[48]

This processing of input and pre-processing of output is what we need to understand if we are to teach a foreign language. It is here precise ly that we have much to learn from the experimental findings of the psychology of perception which has made great strides in recent years. Psychology is not an alien science coming to strange conclusions which contradict what we ourselves observe. Much of what the psychologist discovers appears to us to be "common sense" because he is describing the operations of the human organism. Thus recent psychological studies in perception help us to understand experiences enshrined in such familiar expressions as: he was only listening with half an ear,[49] it was just on the tip of my tongue,[50] you took the words right out of my mouth,[51] and you can tell he's French by his accent.[52]

I shall now take two common problems of foreign-language learning and show how recent theories of perceptual processing can help us to analyze and deal with them.

A teacher may ask: If listening is a passive or receptive skill, why do students sometimes seem to hear what was never said?

Studies in perception make it clear that listening is far from being a passive skill, and the same may be said of reading (which shares with listening certain processes in a different sense modality).[53] Listening involves an active cognitive processing. Far from being an act of reception it involves the construction of a message from phonic material, with the result that the message we construct may sometimes be different from the message tha speaker intended. There are three stages in the aural reception of a message and changes in the original message can occur at each stage. First, the listener must recognize in phonic substance sound patterns in bounded segments related to phrase structure (here we are helped by the rhythm of speech). At this stage we are dependent on echoic memory which is very fleeting. Unless we interrelate meaningfully the segments we detect we lose them as echoic memory fades. To extract a message, then, we must immediately begin processing, identifying the groupings we have detected according to the content of our central information system, that is, according to knowledge we have already stored. (This store of knowledge is, of course, limited at first in the foreign language, but expands as we continue to learn.) We recirculate this organized material through our immediate memory thus building up an auditory memory of it which helps us retain the segments we are pro- ——————————→

cessing. It is valuable, then, for the language learner to recapitulate mentally what he is hearing as he processes its meaning (this is a form of sub-vocal matching). Much of this processing of incoming information takes place during the pauses in speech, so speech which has been speeded up within segments is still comprehensible if the pauses are slightly lengthened so that the overall presentation rate remains the same. There are implications here for presentation of listening comprehension materials on tape, especially in view of the modern emphasis on normal rate of speech from the early stages.

It should not surprise us that when we are listening to a language with which we are not very familiar we often lose whole segments here and there even though we comprehended them when they were uttered. At this stage we must interrelate incoming segments with those we have retained and hold some in immediate memory to interrelate them with what follows, so that we can construct a sequential meaning for the utterance and for the sequence of utterances. We are then, by our organization, anticipating the full form of the message, and this explains why we often supply a completion when the speaker hesitates. The more we can gather the incoming information into meaningful chunks[54] the more we can retain. It is therefore important to train students in the perceiving of

groups of words as units. To achieve this we should encourage our students to repeat what they hear in meaningful segments, and we should ask questions which require meaningful segments, rather than single words, as answers. It is also important to train students to hold longer and longer segments in their memory to improve comprehension.

Having constructed our meaning from what we are receiving, we recode this for long-term storage, that is, we reduce it to the "gist", and this is what we recall when asked about it. When we ask students questions about what they have been hearing, we should always encourage them to give the answers in their own words in the foreign language rather than expecting them to repeat exactly what they heard. This encourages real processing rather than superficial "playback", and gives practice in retrieval of the coded material.

It is clear from this analysis that attention plays an important role in comprehension. If attention wavers, we identify the wrong segments, we skip some segments, and we construct a different, idiosyncratic message. We know also that reinforcement plays a role in maintaining attention, so listening should be accompanied by some activity through which

the student can demonstrate his comprehension and experience the pleasure of success. If he can do this through some form of personal expression in speaking or writing, the student learns at the same time that comprehension of a message is part of a communicative act. Set is also a significant factor. We hear what we expect to hear. In normal communication the context (the situation, the time of day, the persons interacting) helps us in interpreting a message. If we miss a segment or two, or if some of what we have heard "slips our mind", we fill in the gaps from expectations based on previous experience in such situations. This is why listening comprehension is facilitated when there is a visual or situational element, or even some background noises on the tape to indicate that the speakers are in a railroad station or at the seaside.

Emotion affects our cognitive processing. Personal thoughts and apprehensions take up some of the limited processing capacity, interfering with interpretation and retention of what is being perceived. It is natural, then, that the nervous or embarrassed student cannot "hear" well, or "hears" what was never said. The more disconcerted he becomes the more he grabs at semantic clues here and there and tries to process some kind of message. It is also natural for a student to forget what he heard and understood,

and be unable to recount it. Material which is relatively unfamiliar cannot be gathered into large enough chunks, processing capacity is overstrained, and there is not enough cognitive energy left for the listener to rehearse and recode for storage what is being interpreted. In this case the student understands as he hears each segment but cannot store a sequential message.

For our second problem we imagine our teacher complaining:

<u>My students rattle off drills (or write out paradigms; or whip through packets) all right, but they never seem to remember anything from one day to the next</u>.

How familiar this sounds! These students are relying on short-term memory for their answers, particularly in drills and exercises where all the elements are supplied. In aural-oral drills particularly, the rhythm of the cues helps the students to produce the answers with a minimum of cognitive processing. Since they are not personally identifying the salient regularities in the material they are "rattling off" they are not forming concepts which they can relate to other information in the long-term store.

Each utterance is a relatively unrelated new experience. Once a concept is formed, each utterance in a series becomes a variation on a theme which permits rehearsal and recirculation of the concept for recoding in long-term memory. Sentences in most drills and exercises are semantically empty for the student in the sense that they have no personal reality for him as a reflection of his present experience: they become exercises in manipulation of language segments which is purposeful only as manipulation. Mechanical, non-meaningful activity does not use up a great deal of processing capacity--just enough to imitate, more or less accurately, and make minor adjustments. As a result a process of time-sharing takes place on the following pattern:

je mange du fromage...

(That boy with the red hair looks interesting.)

je mange des pommes...

(He's drumming rhythmically with his fingers.)

je mange des carottes...

(I wonder if he likes dancing.)

je mange de la viande...

(Ah! he prefers cinnamon gum. I must remember that.)

It is no wonder, then, that the point of the drill never reaches the long-term store from which it could have been retrieved the next day or a week or two later.

Other problems which I would like to have considered, had the time allowed, are the following:

We've practiced and practiced that structure but they still get it wrong when they try to say something on their own.

Mary's the first to recognize when something is wrongly pronounced, yet her own pronunciation is nothing to write home about.[55]

They say every sentence we utter is one that's never been heard before. Most conversations don't sound that original to me.

And finally one remark I heard recently at a discussion on individualized instruction:

Where do all these paragons come from who go off in a corner by themselves and work like mad? I know mine would just goof off!--which brings us into the whole area of the psychology of motivation![56]

Carroll observes that "the 'new orthodoxy' in linguistics and psycholinguistics has made certain statements that have made second language teachers almost despair of their profession."[57] Teachers, he says, need to be constantly reminded of practices that "have long been the property of good language teachers, from the days of Gouin, de Sauzé, Palmer, Sweet and other pioneers...because they tend to develop, under the pressure of new fads and theories, a kind of professional panic and anxiety about their work."[58] The busy teacher, exhilarated or wearied by a long day working with impatient and ebullient students, hardly needs to read: "that people can learn, is an undeniable fact of life; that people can teach, is an interesting hypothesis, but unsubstantiated."[59] As a witticism it is worth recalling for the next faculty meeting, but as teachers we realize it is mere playing with words. It is based on a view of teaching (the teacher as authority figure[60]) which is by no means axiomatic. That teachers are "managers of the learning process"[61] is equally authoritarian. It is time to return to the concept of teaching which Dewey expressed so aptly in 1897 (the tradition is, of course, even older): "the child's own instincts[62] and powers furnish the material and give the starting point for all education. Save as the

efforts of the educator connect with some activity which the child is carrying on of his own initiative independent of the educator, education becomes reduced to a pressure from without[63]...The teacher is not in the school to impose certain ideas or to form certain habits in the child but is there as a member of the community to select the influences which shall affect the child and to assist him in properly responding to these influences."[64] With this concept of teaching, we select from among practices we know those which are appropriate to the various aspects of language acquisition, refining them in accordance with theory and experience.

The simple answer to the problem is not merely "individualization". An individualized program, just as much as a classroom situation, presupposes materials with built-in learning approaches. Without guidance students may work in ways which are quite inefficient for language acquisition, just as an uninformed teacher may work inefficiently in class. Analyses of problems like those above show the types of useful indications we as teachers can gain from an understanding of cognitive processes--information that will help us to understand the problems of individual

students and to design materials and activities with which they will be successful because we are not demanding of them responses which are beyond their processing capacities at a particular stage. If teachers are to be required more and more to prepare or adapt materials themselves as individualization becomes more widely accepted as an approach to school learning, they will need to think carefully about how students learn and arrange the conditions and "select the influences" accordingly. To quote a famous poet: "Men must be taught as if you taught them not."[65]

NOTES

1. Martin D.S. Braine, "On Two Types of Models of the Internalization of Grammars", in Dan I. Slobin, ed., The Ontogenesis of Grammar (New York: Academic Press, 1971), pp.160-61.

2. Example cited in Susan Ervin-Tripp, "Structure and Process in Language Acquisition", in James E. Alatis, ed., Bilingualism and Language Contact: Anthropological, Linguistic, Psychological, and Sociological Aspects, Monograph Series on Languages and Linguistics No.23 (Washington, D.C.: Georgetown University Press, 1970), p.340.

3. Gilbert A. Jarvis says, "In the present sense of the term, we shall have to get 'teachers' out of our schools and replace them with facilitators--facilitators of learning." See "Individualized Learning--Where can we Risk Compromise?" in Modern Language Journal, 4(1971), p.376.

4. R.L. Cooper, "What do we Learn when we Learn a Language", TESOL Quarterly, 4(1970), p.312. In this article Cooper has provided us with a number of interesting insights into language learning. I have extracted from it the particular sections quoted because in them Cooper has described in a succinct fashion a particular viewpoint which I wish to analyze and discuss.

5. Notably in Aspects of the Theory of Syntax (Cambridge, Mass.: M.I.T. Press, 1965), Cartesian Linguistics (New York: Harper and Row, 1966), and Language and Mind (New York, Harcourt Brace and World, 1968).

6. "Possible" in the sense that it is congruent with the particular form of innate equipment with which each human being is endowed and is, therefore, a language of a type which a human being can learn naturally.
7. Chomsky (1965), p.25.
8. Chomsky (1968), p.76.
9. Chomsky (1968), p.76.
10. For a full description of LAD see D. McNeill, The Acquisition of Language: The Study of Developmental Psycholinguistics (New York, Harper and Row, 1970), pp.70-71.
11. Chomsky (1965), p.30.
12. Vivian J. Cook, "The Analogy between First and Second Language Learning" in IRAL, 7(1969), p.216. After examining the research on first language acquisition of the mid-sixties, Cook sets out four requirements which would need to be met by a method of teaching foreign languages which could claim to be based on these theories. The suggestion taken up by Cooper is one of these requirements. Cook concludes: "No method can at present claim to fulfill these requirements. It remains to be seen whether they can in principle be fulfilled, whether, in fact, the analogy of first and second language learning is sound."
13. Cooper (1970), pp.312-313.
14. W.M. Rivers, "Talking off the Top of their Heads", TESOL Quarterly 6(1972), pp.71-81.

15. Chomsky (1965), p.53.

16. McNeill (1970), p.56.

17. Cooper (1970), while claiming that " first and second language learning are analogous" and that a second language is not "learned in any fundamentally different way than a first language," nevertheless lists some of the "cognitive differences" in the two situations. "In spite of these differences," he says, "there seems to be little evidence that the actual language-learning processes differ for the child and the adult." In the present state of knowledge I would say that there is very little evidence either for or against such a conclusion because there has not been to date a great deal of experimental research into the specific language learning processes of the sdult. The question is, therefore, still an open one.

18. In "The Arbitrary Basis of Transformational Grammar," Language 48(1972), 76-87, George Lakoff says: "The theory of generative semantics claims that the linguisticselements used in grammar have an independent natural basis in the human conceptual system...In generative semantics, possible grammars are limited by the requirement that the non-phonological elements used have a natural semantic basis, independent of the grammar of any particular natural language" (pp.77-8).

19. Roar Ravem, "Language Acquisition in a Second Language Environment", IRAL, Vol.6(1968), 175-85.

20. Jack C. Richards, "Error Analysis and Second Language Strategies", in Language Sciences, No.17(October, 1971), pp.12-22.

21. H.H. Stern, "First and Second Language Acquisition" in Perspectives on Second Language Teaching, Modern Language Center Publications No.1(Ontario, O.I.S.E., 1970), p.64.

22. As an example, see Ernst Pulgram, Review Essay on N. Chomsky, Language and Mind in Modern Language Journal, 55(1971), pp.474-80.

23. See Nelson Goodman, "The Emperor's New Ideas" in S. Hook, ed., Language and Philosophy (New York: New York University Press, 1969), pp.138-42.

24. J. Bruner, "On Cognitive Growth" in J. Bruner, R. Olver, P. Greenfield et al., Studies in Cognitive Growth (New York, Wiley, 1966), p.43.

25. Braine (1971), p.171.

26. Ervin-Tripp (1970), p.335.

27. T.G. Bever, "The Cognitive Basis for Linguistic Structures" in J.R. Hayes, Cognition and the Development of Language (New York: Wiley, 1970), p.352.

28. McNeill (1970), pp.70-71.

29. Braine (1971), pp.155-68.

30. E. Lenneberg says that even "children suffering from gross and criminal parental neglect" learn to speak the language of their community, in "A Biological Perspective of Language" in E. Lenneberg, ed., New Directions in the Study of Language (Cambridge, Mass: M.I.T. Press, 1964), p.67.

31. For a similar example see D. McNeill, "Developmental Psycholinguistics" in F. Smith and G. Miller, eds., The Genesis of Language (Cambridge, Mass.: M.I.T. Press, 1966), p. 69.

32. See L. Jakobovits, "Psychological Perspectives on Individualized Foreign Language Instruction" in H. Altman and R. Politzer, eds., Individualizing Foreign Language Instruction (Rowley, Mass.: Newbury House, 1971), p. 94.

33. See L. Jakobovits, Foreign Language Learning (Rowley, Mass.: Newbury House, 1970), p.25.

34. S. Ervin-Tripp, "An Overview of Theories of Grammatical Development", in Slobin (1971), p.194.

35. Ibid., p.194.

36. R.Weir, "Some Questions on the Child's Learning of Phonology", in Smith and Miller (1966), p.162.

37. I.M. Schlesinger, "Production of Utterances and Language Acquisition", in Slobin (1971), p.100.

38. Here I am referring to the active controversy between "classical" transformational-generative grammarians who are further developing Chomsky's system and the generative semanticists like Lakoff and McCawley who have an affinity with case grammarians like Fillmore. Lakoff tends to the view that what is innate and universal is an apprehension of logical categories and meaningful relations rather than abstract syntactic principles of a potential language.

The various linguistic schools of thought have provided interesting (and often unexpected) insights into the way language operates. These we should draw on in constructing teaching materials and in helping students learn language, but we should use caution at the moment in making definitive statements about language learning based on one particular theory rather than another.

39. J.T. Lamendella, "On the Irrelevance of Transformational Grammar to Second Language Pedagogy", Language Learning 19(1969), p.270.

40. Bever (1970), p.350.

41. J.B. Carroll, "Current Issues in Psycholinguistics and Second Language Teaching", TESOL Quarterly, 5(1971), pp.101-14.

42. J.B. Carroll, "The Contributions of Psychological Theory and Educational Research to the Teaching of Foreign Languages", Modern Language Journal 49(1965), pp.273-81.

43. D.O. Hebb, W.E. Lambert, and G.R. Tucker, "Language, Thought, and Experience" in Modern Language Journal, 55(April, 1971), pp.212-22.

44. Cambridge, Mass.: The Belknap Press of Harvard University Press, 1966.

45. For a full discussion of the induction-deduction controversy down the ages, see L. Kelly, 25 Centuries

of Language Teaching (Rowley, Mass.: Newbury House, 1969), pp.34-43. Lubinus quotation p.37.

46. Ervin-Tripp (1970), p.316, states that "at a minimum, it can be shown that imitation requires perception, storage, organization of output, and motor output. In addition, before the storage phase there will be interpretation if the material is interpretable." See also Hebb, Lambert, and Tucker (1971), p.218.

47. Ervin-Tripp (1970), p.317.

48. U. Neisser, Cognitive Psychology (New York: Appleton-Century-Crofts, 1967), p.4.

49. Discussed in S. Ervin-Tripp (1970), p.317.

50. See "The 'Tip of the Tongue' Phenomenon" in Roger Brown, Psycholinguistics (New York: The Free Press/ Macmillan, 1970), pp.274-301. Originally published 1966.

51. For further information on this phenomenon see W.M. Rivers, "Linguistic and Psychological Factors in Speech Perception and their Implications for Teaching Materials" in P. Pimsleur and T. Quinn, eds., The Psychology of Second Language Learning (Cambridge at the University Press, 1971), p.127.

52. See Ervin-Tripp (1970), p.323.

53. Both listening and reading are discussed at length in W.M. Rivers, in P. Pimsleur and T. Quinn, eds., (1971), pp.123-34.

54. This term was used by G.A. Miller in his famous article "The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information", Psychological Review 63(1956), pp.81-96.

55. As well as the processes outlined in Note 46 for imitation, the student's own production of sounds when speaking is dependent on articulatory skill and kinesthetic feedback which vary from individual to individual so that the student's internal representation of the sound may not be reflected accurately in his production. Students also vary in their inhibitions about making "strange" sounds or in adopting these sounds as a permanent form of expression. Also during production other factors are competing for the limited processing capacity of the individual. For a full discussion, see Ervin-Tripp (1970), pp.316-26.

56. I have dealt with this aspect of psychology at length in "Motivating through Classroom Techniques", pp.000 of this book.

57. Carroll (1971), pp.108-9.

58. Ibid., pp.112-13. It is interesting to note that Gouin referred to his method as "psychological" or "natural".

59. L. Jakobovits, "Psychological Perspectives on Individualizing Foreign Language Instruction" in Altman and Politzer (1971),p.91.

60. Ibid., p.97.

61. Report of the Committee on the Process of Contracting in Foreign Language Learning in Altman and Politzer (1971), p.123.

62. Views on instincts have changed considerably since 1897, but the sense of the passage is clear and startlingly contemporary.

63. John Dewey, "My Pedagogic Creed" (1897), reprinted in M.S. Dworkin, ed., Dewey on Education (New York: Teachers College Press, 1959), p.20.

64. Ibid., p.24.

65. Alexander Pope, Essay on Criticism III.